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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/535,010

05/31/2005

Peter George Robin Smith

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EXAMINER

RAHLL, JERRY T

ART UNIT

PAPER NUMBER

2874

MAIL DATE

DELIVERY MODE

05/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/535,010

Applicant(s)

SMITH ET AL.

Examiner

Jerry T. Rahl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-12 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The affidavit under 37 CFR 1.132 filed February 19, 2007 is sufficient to overcome the rejection of Claims 1-21 based upon "Fabrication of directly UV-written channel waveguides with simultaneously defined integral Bragg gratings." Electronics Letters. Vol. 38, No. 24 to Emmerson et al.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 3-5, 8, 10-11, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,066,133 to Brienza.**

4. Regarding Claim 1, Brienza describes a method of writing a waveguide channel of increased refractive index into a sample comprising providing a sample of material (21) having a region which is photosensitive to light of a specific wavelength, generating a spot of light (50) at the specific wavelength, where the spot has a periodic intensity pattern of high and low intensity fringes (51) and a width related to the width of the channel, positioning the spot within the photosensitive region (see Figure 1), and causing a relative movement (B) between the sample and the light spot along the path of the channel to define the channel.

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5. Regarding Claims 3, Brienza describes exposure to the light spot discontinuous during the relative movement (due to shifting from moving mask 31 – see Columns 6-7) to define a Bragg grating.
6. Regarding Claims 4 and 5, Brienza describes the exposure including adjacent exposures along the path that overlap such that each exposure includes a high intensity fringe exposing apart already exposed by a high intensity fringe in a previous exposure (see Column 9).
7. Regarding Claim 8, Brienza describes the relative movement as non-perpendicular (at angle α) to the intensity pattern to form a titled Bragg grating.
8. Regarding Claim 10, Brienza describes generating the light spot (50) by intersecting two beams (11, 12) at an angle to form an interference pattern.
9. Regarding Claim 11, Brienza describes the light spot generated by exposure through a phase mask (31).
10. Regarding Claim 14, Brienza describes the path as substantially linear (along 21).
11. **Claims 1-2, 9, 12, and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,573,026 to Aitken et al.**
12. Regarding Claim 1, Aitken et al. describes a method of writing a waveguide channel of increased refractive index into a sample comprising providing a sample of material (4) having a region which is photosensitive to light of a specific wavelength, generating a spot of light (3) at the specific wavelength, where the spot has a periodic intensity pattern of high and low intensity fringes (see Columns 7-9) and a width related to the width of the channel, positioning the spot within the photosensitive region (see Figures 2A, 2B, 4A, and 4B), and causing a relative

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movement (13) between the sample and the light spot along the path of the channel to define the channel.

13. Regarding Claim 2, Aitken et al. describes the relative movement as at a constant velocity with continuous exposure to the light spot (see Column 5).

14. Regarding Claim 9, Aitken et al. describes the light spot as circular (see Columns 7-9).

15. Regarding Claim 12, Aitken et al. describes the low intensity fringes of the light spot having an intensity greater than zero (see Figure 10C).

16. Regarding Claims 14-17, Aitken et al. describes the paths having the shapes described by the present claims (see Figures 11A-1D).

17. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brienza as applied to claim 1 above, and further in view of US Patent No. 6,221,566 to Kohnke et al.

18. Regarding Claims 18-21, Brienza describes a method of writing a waveguide, as discussed above. Brienza does not describe loading the region with hydrogen or deuterium. Kohnke et al. describes loading a photosensitive region with hydrogen or deuterium and heating the region to lock the hydrogen or deuterium (see Abstract and Columns 1-3). At the time of invention, it would have been obvious to one of ordinary skill to use the loading and locking methods of Kohnke et al. with the writing process of Brienza. The motivation for doing so would have been to enhance the photosensitivity of the material used by Brienza.

Allowable Subject Matter

19. Claims 6-7 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. Claims 6-7 describe adjacent exposures offset so that the Bragg grating has a different period from the periodic intensity of the light spot. Claim 13 describes the light spot generated from polarized light.

21. This is subject matter not described or reasonably suggested, in conjunction with the further limitations of the present claims, by the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jerry T Rahl



/Sung Pak/

Sung H. Pak

Primary Examiner

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